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52

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,272	07/11/2001	Yasuhiro Mouri	110092	8345

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EXAMINER

MAGEE, CHRISTOPHER R

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 09/08/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/902,272

Applicant(s)

MOURI ET AL.

Examiner

Christopher R. Magee

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/21/2004 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jabbari (US 5,557,490) in view of Coffey et al. (hereinafter Coffey) (US 5,864,441).

- Regarding claim 1, Jabbari shows a pivot assembly 114 for a magnetic disk storage comprising:

- an actuator block 104 having an axial bore 110;

- a fixed shaft 116;

- a pair of ball bearings 118, 120, mounted thereon to support the actuator block 104, each of the pair of ball bearings having:

Art Unit: 2653

an outer ring 124 having outer and inner peripheral surfaces, the inner peripheral surface having an annular groove at each edge (not numbered; Figure 3);

an inner ring 122 that directly engages the fixed shaft 116; and

an annular spacer 128 disposed between the pair of ball bearings, the annular spacer 128 having an inner axially-extending annular projection (not numbered) and an outer end face, the outer end face is adjacent to the outer peripheral surface of the outer ring, the annular projection having an outer rim surface, wherein the pair of ball bearings 118, 120, is fitted directly into the axial bore 110 of the actuator block 104 (col. 3, lines 16-34; Figure 4B), and the outer rim surface of the annular projection is adjacent to the inner peripheral surface of the outer ring (Figure 3)..

Jabbari does not show pair of shields engaging the outer and inner rings, each shield disposed within an annular groove at said each edge and the outer peripheral surface of the outer ring directly engages the actuator block.

Coffey teaches a pair of shields (not numbered) engaging the outer and inner rings, each shield disposed with an annular groove at said each edge, and the outer peripheral surface of the outer ring directly engages the actuator block 30 (Figure 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the pivot assembly of Jabbari with a pair of shields and where the outer peripheral surface of the outer ring directly engages the actuator block as taught by Coffey.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the pivot assembly of Jabbari with a pair of shields and where the outer peripheral surface of the outer ring directly engages the actuator block as taught

Art Unit: 2653

by Coffey in order to facilitate efficient top-down assembly of the system components within the data storage system housing, and in particular, the rotatable actuator (Coffey, col. 2, lines 42-45). Also, the pair of shields will act as a barrier to particulates that might migrate from the pivot assembly into the disc space of the disc drive.

- Regarding claim 2, Jabbari shows a pivot assembly 114 for a magnetic disk storage comprising:

- an actuator block 104 having an axial bore 110;

- a fixed shaft 116;

- a pair of ball bearings 118, 120, mounted thereon to support the actuator block 104, each of the pair of ball bearings having:

- an outer ring 124 having outer and inner peripheral surfaces, the inner peripheral surface having an annular groove at each edge (not numbered; Figure 3);

- an inner ring 122 that directly engages the fixed shaft 116; and

- an annular spacer 128 disposed between the pair of ball bearings, the annular spacer 128 having an inner axially-extending annular projection (not numbered) and an outer end face, the outer end face is adjacent to the outer peripheral surface of the outer ring, the annular projection having an outer rim surface, wherein the pair of ball bearings 118, 120, is fitted directly into the axial bore 110 of the actuator block 104 (col. 3, lines 16-34; Figure 4B), and the outer rim surface of the annular projection is adjacent to the inner peripheral surface of the outer ring (Figure 3)..

Jabbari does not show pair of shields engaging the outer and inner rings, each shield disposed within an annular groove at said each edge, the outer peripheral surface of the outer

Art Unit: 2653

ring directly engages the actuator block and the outer ring thickness is increased by a sleeve thickness of a sleeve conventionally interposed between the pair of ball bearings and the actuator block.

Coffey teaches a pair of shields (not numbered) engaging the outer and inner rings, each shield disposed with an annular groove at said each edge, the outer peripheral surface of the outer ring directly engages the actuator block 30 (Figure 3), and the outer ring thickness is increased by the a sleeve thickness conventionally interposed between the pair of ball bearings and the actuator block.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the pivot assembly of Jabbari with a pair of shields, where the outer peripheral surface of the outer ring directly engages the actuator block and the overall thickness of the outer ring is increased as taught by Coffey.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the pivot assembly of Jabbari with a pair of shields, where the outer peripheral surface of the outer ring directly engages the actuator block and the overall thickness of the outer ring is increased as taught by Coffey in order to facilitate efficient top-down assembly of the system components within the data storage system housing, and in particular, the rotatable actuator (Coffey, col. 2, lines 42-45). Also, the pair of shields will act as a barrier to particulates that might migrate from the pivot assembly into the disc space of the disc drive.

Art Unit: 2653

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jabbari (US 5,557,490) and Coffey et al. (hereinafter Coffey) (US 5,864,441) and further in view of Takahashi et al. (hereinafter Takahashi) (US 4,984,115).

- Regarding claim 4, Jabbari shows a pivot assembly 114 for a magnetic disk storage comprising:

- an actuator block 104 having an axial bore 110;

- a fixed shaft 116;

- a pair of ball bearings 118, 120, mounted thereon to support the actuator block 104, each of the pair of ball bearings having:

- an outer ring 124 having outer and inner peripheral surfaces, the inner peripheral surface having an annular groove at each edge (not numbered; Figure 3);

- an inner ring 122 that directly engages the fixed shaft 116; and

- an annular spacer 128 disposed between the pair of ball bearings, the annular spacer 128 having an inner axially-extending annular projection (not numbered) and an outer end face, the outer end face is adjacent to the outer peripheral surface of the outer ring, the annular projection having an outer rim surface, wherein the pair of ball bearings 118, 120, is fitted directly into the axial bore 110 of the actuator block 104 (col. 3, lines 16-34; Figure 4B), and the outer rim surface of the annular projection is adjacent to the inner peripheral surface of the outer ring (Figure 3)..

First, Jabbari does not show pair of shields engaging the outer and inner rings, each shield disposed within an annular groove at said each edge and the outer peripheral surface of the outer ring directly engages the actuator block.

Art Unit: 2653

Coffey teaches a pair of shields (not numbered) engaging the outer and inner rings, each shield disposed with an annular groove at said each edge, and the outer peripheral surface of the outer ring directly engages the actuator block 30 (Figure 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the pivot assembly of Jabbari with a pair of shields and where the outer peripheral surface of the outer ring directly engages the actuator block as taught by Coffey.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the pivot assembly of Jabbari with a pair of shields and where the outer peripheral surface of the outer ring directly engages the actuator block as taught by Coffey in order to facilitate efficient top-down assembly of the system components within the data storage system housing, and in particular, the rotatable actuator (Coffey, col. 2, lines 42-45). Also, the pair of shields will act as a barrier to particulates that might migrate from the pivot assembly into the disc space of the disc drive.

Second, Jabbari and Coffey disclose all the features except each pair of ball bearings having an extension formed on one side of an outer ring thereof, and said pair of ball bearings being mounted onto said fixed shaft with said extensions abutted against each other.

Takahashi shows a pair of ball bearings 15c, 16c, having an extension formed on one side of an outer ring 15a' thereof, and said pair of ball bearings 15c, 16c are mounted onto said fixed shaft 7 with said extensions abutted against each other (Figure 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide pivot assembly of Jabbari and Coffey with a pair of ball bearings having an extension formed on one side of an outer ring thereof, and said pair of ball bearings being

Art Unit: 2653

mounted onto said fixed shaft with said extensions abutted against each other as taught by Takahashi.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the pivot assembly of Jabbari and Coffey with a pair of ball bearings having an extension formed on one side of an outer ring thereof, and said pair of ball bearings being mounted onto said fixed shaft with said extensions abutted against each other as taught by Takahashi in order to dispose of the spacer between the outer rings of the bearing set (Takahashi; col. 6, lines 12-16) so that the radial rigidity of the bearing set can be increased.

Allowable Subject Matter

4. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (703) 605-4256. The examiner can normally be reached on M-F, 8: 00 am-5: 30 pm.

Art Unit: 2653

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher R. Magee
Patent Examiner
Art Unit 2653

September 7, 2004



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